

BOTANICAL MUSEUM LEAFLETS

HARVARD UNIVERSITY

CAMBRIDGE, MASSACHUSETTS, AUGUST 15, 1951

VOL. 15, No. 3

ORCHIDACEAE PERUVIANAE VIII

BY

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THE PRESENT ARTICLE is the eighth in the series pertaining to Peruvian orchids. Beside amplifications, corrections and nomenclatural notes, there are descriptions of new concepts in the genera *Lepanthes*, *Pleurothallis*, *Liparis* and *Diothonea*.

The order of genera follows that proposed by Dr. Rudolf Schlechter in *Notizblatt des Botanischen Gartens und Museums Berlin-Dahlem* 9 (1926) 563–591.

Lepanthes longipedicellata C. Schweinfurth sp. nov.

Herba parva, caespitosa, saxicola. Caules tenues, pluriarticulati, vaginis hispidis tubulatis cum ostio ovato arcissime obtecti. Folium unicum, ellipticum vel oblongo-ellipticum, plusminusve breviter petiolatum, subtus plusminusve purpureum. Inflorescentiae saepissime plures, quam folium longiores, laxe pluriflorae. Flores perparvi, cum pedicello longo. Sepala late patentia, membranacea. Sepalum dorsale elliptico-ovatum cum parte anteriore caudato-acuminata et recurva, trinervium. Sepala lateralia anguste triangulari-lanceolata, sensim longe acuminata, uninervia, dorso conspicue papillosa. Petala transverse bilobata; lobi perangusti. Labellum generis, trilobatum; lobi laterales comparate magni, dolabriformes; lobus medius minutus, pubescens.

Plant small, caespitose, up to 10.5 cm. tall. Roots fibrous, numerous, relatively stout, apparently thicker than the stems. Stems slender, up to 7 cm. high, entirely concealed by several close, tubular, hispid sheaths which terminate in an ovate marginate hispid mouth. Leaves solitary and erect at the apex of the stem, elliptic to oblong-elliptic, more or less acute with a minutely tridenticulate apex, cuneate-narrowed to a short petiole, green above and more or less purple beneath, up to 3.5 cm. long including the petiole and 1.3 cm. wide, sometimes slightly oblique. Inflorescences one to seven, axillary, suberect to diffuse, generally distinctly surpassing the leaf in maturity, loosely several- (up to 12-) flowered; pedicels spreading-ascending, much surpassing the subtending infundibuliform bract which is just below the emergence of the pedicel. Flowers very small, membranaceous, with widely spreading sepals. Dorsal sepal elliptic-ovate with caudate-acuminate recurved apex, cucullate, 3-nerved, the mid-nerve being carinate without, about 6 mm. long and 2 mm. wide when expanded. Lateral sepals narrowly triangular-lanceolate, gradually long-acuminate, gently recurved above, shortly connate at the base, 1-nerved, conspicuously long-papillose and unicarinate without, about 7 mm. long in natural position and 1.3 mm. wide near the base. Petals much smaller than the sepals, transversely bilobed, about 0.3 mm. long and 3.1 mm. wide; posterior lobe lanceolate-linear, obtuse or subacute; anterior lobe triangular-linear, slightly smaller than the posterior lobe. Lip very small, adnate to the column above the middle, 3-lobed, about 1.5 mm. long and 2.2 mm. wide near the base in natural position; lateral lobes dolabriform with a truncate and thickened outer margin and a slender incurved apex; mid-lobe minute, pubescent. Column about 1.8 mm. high.

This species is outwardly similar to *Lepanthes alticola*

C. Schweinf. and to *L. pubicaulis* C. Schweinf. It differs from the former in having prominently hispid stems and an elongate pedicellate ovary, and from the latter in its loosely flowered inflorescence which more or less surpasses the leaf.

PUNO: Prov. of Carabaya, Ollachea (abajo), at 2500 meters altitude, below cliffs, December 30, 1947, C. Vargas 6939 (TYPE in Herb. Ames No. 64895).

***Lepanthes minutipetala* C. Schweinfurth sp. nov.**

Herba gracilis, muscicola. Caules caespitosi, pergraciles vel filiformes, vaginis arctis tubulatis numerosis cum ostiis ovatis hispidis patentibus omnino obtecti. Folium unicum, terminale, oblongo-ovatum, subabrupte acuminatum cum apice tridenticulato. Inflorescentiae saepissime duae vel tres, racemosae, folio multo breviores, dense bi- vel pluriflorae. Flos perparvus. Sepala late patentia, basi valde connata. Sepalum dorsale triangulari-ovatum, acutum vel breviter acuminatum. Sepala lateralia minora, oblique triangulari-ovata, acuta, per dimidium basalem connata. Petala perparva, transverse suborbiculari-ovalia. Labellum trilobatum; lobi laterales dolabrimiformi-peltati, parte exteriori pubescenti; lobus medius minutus, bidentatus. Columna gracilis.

Plant slender, growing in thick moss. Roots fibrous, glabrous. Stems caespitose, tall, slender to filiform, about 28 cm. or less high, entirely concealed by numerous close tubular minutely scabrous sheaths which terminate in an ovate marginate hispid mouth. Leaf solitary, terminal, erect or spreading, oblong-ovate, rather abruptly acuminate to a tridenticulate apex of which the middle tooth is longer, cuneate-narrowed to a short petiole below, up to 4.6 cm. long and 1.3 cm. wide, chartaceous when dry, many-nerved with three more conspicuous ribs. Inflorescences terminal, two to three (rarely four), racemose, densely 2- to several-flowered, equaling about half the

subtending leaf or less. Floral bracts minute, loosely infundibuliform, glabrous, apparently dark reddish brown. Flowers very small, glabrous, yellow. Sepals membranaceous, widespreading, deeply connate at the base. Dorsal sepal relatively large, triangular-ovate, acute or short-acuminate, 3-nerved, about 5 mm. long along the mid-nerve and 4.4 mm. wide at the base of the free part. Lateral sepals obliquely triangular-ovate, acute and short-apiculate, with the inner margins connate through the lower half, 1-nerved, about 4.4 mm. long along the nerve and 2.5 mm. wide near the base. Petals very small, transversely suborbicular-oval, broadly rounded or subtruncate above, about 1.2 mm. long and 2 mm. wide. Lip 3-lobed, attached to about the middle of the column by the broad base of the lateral lobes; lateral lobes dolabriform-peltate with linear-lanceolate pubescent outer surface which is about 2 mm. long and rounded at each end; mid-lobe minute, broadly rhombic-ovate, sharply bidentate, pubescent. Column slender, about 1.9 mm. long.

This species appears to have no near allies.

Cuzco: Prov. of Paucartambo, "cordilleras de 3 Cruces," in rain-forest, "ceja de la montaña," at 3600 meters altitude, October 10-14, 1943, *C. Vargas 3637* (TYPE in Herb. Ames No. 64904).

***Lepanthes pubicaulis* C. Schweinfurth sp. nov.**

Herba pusilla, caespitosa, epiphytica. Caules pergraciles, vaginis tubulatis arctis pilosis cum ostiis ovatis hispidis omnino celati. Folium unicum, ellipticum vel late ovale, apice subacutum vel obtusum, basi breviter petiolatum. Inflorescentiae racemosae, dense pauci-vel multiflorae, quam folium maxima pro parte breviores. Flores parvi, membranacei. Sepala glabra. Sepalum dorsale ovato-lanceolatum, longe acuminatum. Sepala lateralia valde similia sed paulo minora. Petala transverse bilobata; lobi subaequales, anguste lanceolati. Labellum

columnae parti basali adnatum, apice trilobatum, basi truncato-cordatum; lobi laterales comparate magni, oblique semiovati, apice incurvi; lobus medius minutus. Columna gracilis.

Plant small, epiphytic, caespitose, about 8 cm. high. Roots fibrous, numerous. Stems very slender, erect-spreading, up to 5.6 cm. long, entirely concealed by six to eight close tubular densely pilose sheaths which terminate in an ovate spreading marginate pilose mouth. Leaf solitary, terminal, erect or erect-spreading, elliptic to broadly oval, up to 2.7 cm. long and 1.5 cm. wide (commonly about 2 cm. long and 1 cm. wide), subacute to obtuse at the minutely tridenticulate apex, cuneate below and gradually narrowed to a short petiole, many-nerved with three more prominent nerves. Racemes terminal, axillary, three or four (rarely five), densely 2- to 16-flowered, commonly more or less shorter than the subtending leaf but rarely surpassing the leaf, about 3 cm. or less long including the short naked peduncle, erect or arcuate. Floral bracts subapproximate, infundibuliform. Flowers small, reddish yellow, membranaceous and wide-spreading in anthesis. Sepals glabrous, connate below. Dorsal sepal ovate-lanceolate, long-acuminate, 3-nerved, about 7.4 mm. long and 2.6 mm. wide across the base of the free portion. Lateral sepals similar, ovate-lanceolate, long-acuminate, prominently 1-nerved with a short supplementary nerve, about 7 mm. long along the central nerve and 2.2 mm. wide across the base of the free portion. Petals transversely bilobed with subequal more or less divergent lobes; posterior lobe narrowly lanceolate, gradually narrowed to an obtuse tip, about 3.8 mm. long and 0.7 mm. wide at the base of the free part; anterior lobe about equally large, oblong-lanceolate. Lip adnate to the lower part of the column, broadly triangular-ovate in outline, prominently 3-lobed near the apex, truncate-

cordate at the base, about 2.2 mm. long from the center of the base to the apex of a lateral lobe and 2.6 mm. wide at the base; lateral lobes relatively large, obliquely semiovate, incurved above, obtuse; mid-lobe minute, triangular-ovate. Column slender, shorter than the lip, more or less dilated above.

This little plant resembles *Lepanthes pumila* C. Schweinf. in habit, but not in floral structure. It differs from *L. cassidea* Reichb.f. in its oval leaves and lack of cilia on the petals and lip. It varies from *L. Millei* Schltr. in having densely flowered racemes and dissimilar petals which lack a median lobule.

Cuzco: Prov. of Quispicanchis, Cachubamba, Marcapata, at 2800 meters altitude, December 12, 1943, C. Vargas 3817 (TYPE in Herb. Ames No. 65059).

Pleurothallis bicornis Lindley Fol. Orch. Pleurothallis (1859) 7, no. 29.

A critical examination of a photograph of the type of this species in the Lindley Herbarium suggests several corrections in the original description.

The leaf appears to be ovate-oblong, rather than "oblong." While this organ is described and shown as "deflexed," that condition seems to be due to the fact that the base of the lamina has evidently been broken and torn from its natural junction with the stem and bent down in the dried specimen. It seems quite evident, also, that the cauline sheath was detached from the stem in the type specimen and that it was pushed up the stem to the origin of the leaf, a condition which is rarely seen in natural specimens.

Several recent Peruvian collections referable to *Pleurothallis bicornis* show the need for a few additional corrections. The leaf, which varies from ovate-oblong to oblong-elliptic, is 9.2–14.7 cm. long (not 17.5 cm. as shown). It is always acute at the apex (not acuminate)

as specified, and is either rounded or very slightly cordate at the base, whereas it was described as "cordate." The petals are noted as acuminate and involute, whereas those in the specimens observed are fleshy-thickened above and usually with an obtuse or subacute apex. The lip, which was described as three-lobed, is really subsimple and broadly ovate, rather than "rhombic" as specified. Moreover, there is a pair of rather prominent calli on the disc.

Cuzco: Prov. of Calca, Vilcabamba, in shrubby thickets at 2700 meters altitude, January 6, 1944, *C. Vargas 3947*.

HUÁNUCO: Mito, at about 2700 meters altitude, on steep southwestern slope, flowers translucent with dark red opaque lines, July 8-22, 1922, *Macbride & Featherstone 1397*; same locality and altitude, ledges on shrubby hillsides, April 8-18, 1923, *J. Francis Macbride 3286*.

***Pleurothallis carinata* C. Schweinfurth sp. nov.**

Herba epiphytica, humilis, cum rhizomate repenti. Caules comparate remoti, graciles, unifoliati. Folium oblongo-ellipticum, subacutum vel obtusum, basi late cuneatum, sessile, carnosum. Inflorescentia axillaris, perbrevis, racemosa, biflora ut videtur. Flores lutei, bilabiati. Sepalum dorsale anguste oblongo-lanceolatum, acuminatum, parte anteriore incrassata et leviter recurva. Sepala lateralia in laminam valde concavam, ovato-lanceolatam, acuminatam connata. Petala sepalis multo minora, oblongo-lanceolata, acuta, super medium minute serrulata, trinervia cum nervis lateralibus intus carinatis. Labellum petalis subaequale, oblongo-ovatum, cum lobis lateralibus triangularibus parvis erecto-incurvis. Columna gracilis; clinandrium dentatum.

Plant epiphytic, rather small. Rhizome creeping, entirely concealed by close scarious imbricating sheaths, with roots which are fibrous, glabrous, elongate, simple. Stems about 2 cm. apart, 5.5-6 cm. tall, 1- or 2-jointed, ascending from the base which is subparallel to the rhi-

zome, 1-leaved at the apex, not broadened above, with two or three imbricating tubular, scarious sheaths through the lower half. Leaf erect, fleshy-coriaceous, oblong-elliptic, subacute to obtuse, sessile at the broadly cuneate base, about 8.4 cm. long and 2.15 cm. wide. Inflorescences one or two, very short, axillary, loosely racemose and 2-flowered above, subtended below by a small inconspicuous spathe; rachis about 2 cm. or less long. Flowers dark yellow, bilabiate. Dorsal sepal narrowly oblong-lanceolate, acuminate, concave below with a fleshy recurved upper portion, 3-nerved, about 1 cm. long when expanded and 2.7 mm. wide. Lateral sepals connate into a deeply concave ovate-lanceolate lamina which is narrowed to the shortly bidentate apex, 6-nerved, bluntly bicarinate on the back, and about 9.5 mm. long and 5.6 mm. wide below when expanded. Petals much smaller than the sepals, oblong-lanceolate, acute, somewhat dilated unequally on each side at the base, minutely serrulate above the middle, prominently 3-nerved with the lateral nerves carinate on the inner surface above the middle, about 5.1 mm. long and 1.4 mm. wide (slightly wider at the very base). Lip a little shorter than the petals, oblong-ovate, abruptly acute and apiculate, with obscurely denticulate anterior margins, broadly truncate at the base, fleshy, 3-nerved, about 5 mm. long and 2 mm. wide, provided on each side below the middle with a small erect, porrect, triangular lobule which is serrate above; disc shortly bicarinate above the middle. Column slender, lightly arcuate, about 4.8 mm. high at the back, terminating in a deeply dentate wing and basally produced into a short foot.

This species is very similar to *Pleurothallis ciliata* Knowl. & Westc., but has a different 3-lobed lip. The bicarinate petals are remarkable, this character suggesting the specific name.

Cuzco: Prov. of Quispicanchis, Murayacu, Marcapata, at 1300–1600 meters altitude, December 12, 1943, *C. Vargas 3757* (TYPE in Herb. Ames No. 63358).

***Pleurothallis carnosifolia* C. Schweinfurth sp. nov.**

Herba humilis, inconspicua. Caules caespitosi, breves, unifoliati, vaginis pluribus tubulatis omnino obtecti. Folium erectum, oblanceolatum vel anguste ellipticum, carnosissimum, in siccitate saepissime conduplicatum, acutum vel subacutum, sessile. Inflorescentiae axillares, fasciculatae, racemosae, peraxe pauciflorae, quam folium saepissime longiores. Flores pro planta grandes. Sepala lineari-lanceolata, acuminata, acuta, dorso conspicue carinata. Petala sepalis similia sed minora. Labellum parvum, simplex, in positu naturali leviter recurvum, cum lateribus basalibus erectis, expansum lanceolato-ovatum, acutum, basi rotundatum. Columna perparva, in pedem producta.

Plant low, inconspicuous, up to 8 cm. tall. Roots numerous, fibrous, glabrous. Stems caespitose, short, unifoliate at the apex, entirely concealed by about five imbricating tubular sheaths, up to about 3 cm. tall. Leaves erect, oblanceolate or narrowly elliptic, very fleshy, usually conduplicate in the dried specimen, acute or subacute, gradually narrowed to a sessile base, up to 5.5 cm. long and from 1 to 1.4 cm. wide. Inflorescences axillary, fascicled, racemose, four to seven, filiform, commonly longer than or subequaling the leaf, very loosely 3- to 5-flowered. Flowers large for the plant, fleshy, yellow and coffee-color, campanulate. Sepals conspicuously carinate without. Dorsal sepal linear-lanceolate, long-narrowed to an acute apex, concave below, 3-nerved, about 9.5 mm. long and 2.6 mm. wide. Lateral sepals very similar, about 9.5 mm. long and 2.2 mm. wide. Petals similar to the sepals but smaller, linear-lanceolate, acuminate, 1-nerved, locally erose-dentate, about 7.6

mm. long and 1.8 mm. wide. Lip small, simple, lightly arcuate-recurved with erect sides and about 4 mm. long in natural position, lanceolate-ovate, acute, rounded at the base, 3-nerved and 1.3 mm. wide when expanded, minutely cellular-pubescent. Column small, denticulate at the truncate apex, about 2.1 mm. high at the back, extended in front at a right angle into a prominent fleshy foot.

This species is allied to *Pleurothallis citrina* Schltr., but has larger flowers and a dissimilar lip.

Cuzco: Prov. of Urubamba, Salapunco (kil. 84), at 2400 meters altitude, on rocks growing with moss, March 25, 1946, *C. Vargas* 5989 (TYPE in Herb. Ames No. 63356).

Pleurothallis caudatipetala *C. Schweinfurth* in Bot. Mus. Leafl. Harvard Univ. 10 (1942) 175, pl. 22, figs. 5-8.

A recent and more fully developed collection of this little species shows several vegetative differences from the apparently juvenile type originally described.

The caespitose plants are about 3-3.5 (not 1.5 cm. or less tall, as specified). Leaves larger than noted, up to 15 mm. long. Inflorescences much surpassing the leaf (instead of shorter than or subequaling the leaf), loosely racemose, up to 11-flowered (rather than 1- to few-flowered). Flowers more glabrous than those of the type. Although no notes of the color are given, all but the basal portion of the sepals and petals is dark purplish in the dried specimen.

Cuzco: Prov. of Urubamba, Machupicchu, at 2040 meters altitude, on rocks, April 16, 1943, *C. Vargas* 3367.

Pleurothallis crateriformis *C. Schweinfurth* sp. nov.

Herba epiphytica, caespitosa, mediocris. Caules patentes, graciles, vaginis tribus arcte tubulatis pubescen-

tibus ornati. Folium late ovatum, abrupte acutum, basi profunde cordatum. Inflorescentiae abbreviatae, uniflorae, unicae vel plures. Flores parvi, bilabiati. Sepalum dorsale perlate ovatum, acutum. Sepala lateralia in laminam angustiore oblongo-ovatum omnino connata. Petala lanceolato-lineararia, leviter recurva. Labellum ovatum, profunde concavo-saccatum vel crateriforme, basi cordatum, caverna marginibus latis planis utrinque circumdata. Columna subgeneris, crassa, abbreviata.

Plant epiphytic, caespitose, medium-sized. Roots fibrous, numerous, glabrous. Stems spreading, slender, often with a decumbent base, up to 14.5 cm. high, provided with about three close tubular evanescent sheaths which are densely fine-pubescent, the lower two being small and imbricating and the upper one separated and much longer. Leaf horizontally spreading or more or less reflexed, broadly ovate, deeply cordate at base with overlapping lobules, abruptly acute with a minutely tridentate apex, up to 8.7 cm. long from the apex to the tip of a basal auricle and 5 cm. wide. Inflorescences abbreviated, 1-flowered, one to several, in the axil of an evanescent conduplicate spathe. Flowers small, bilabiate, dark red outside with the inner side of the sepals and petals pale brown with dark red lines. Sepals sparingly pubescent without. Dorsal sepal round-ovate, acute with a minute incurved point, with three prominent veins on either side of the double central vein, about 8 mm. long and 6.9 mm. wide. Lateral sepals entirely connate into an oblong-ovate concave obtuse lamina which is 6-nerved and about 8.5 mm. long and 4.2 mm. wide in natural position. Petals lanceolate-linear, gently recurved, gradually narrowed to a subacute apex, 1-nerved, about 6.6 mm. long and 1.1 mm. wide below. Lip simple, ovate, deeply concave-saccate, subacute with a minute incurved point, cordate at the base, the cavity being surrounded

on each side by a broad fleshy flattened margin, about 4 mm. long and 3 mm. wide. Column stout, abbreviated.

This species is distinctive in its perplexing section of the genus *Pleurothallis* by reason of several floral characters. The dorsal sepal is much broader than the lamina of the fused lateral sepals and the deeply concave or bowl-shaped lip (which suggests the specific name) appears to be extraordinary.

JUNÍN: Prov. of Tarma, Agua Dulce, at 2000 meters altitude, on a tree in low highland forest, March 17, 1948, *F. Woytkowski 35487* (TYPE in Herb. Univ. Calif.; ISOTYPES in Herb. Ames and in Herb. Mo. Bot. Gard.).

***Pleurothallis cyathiflora* C. Schweinfurth sp. nov.**

Herba epiphytica, crassa. Caules approximati, arcuati, uniarticulati, apice unifoliati. Folium unicum, breviter petiolatum; lamina oblongo-elliptica, apice basique rotundata; petiolus parvus, canaliculatus. Inflorescentia solitaria, folio subaequalis vel longior, flexuoso-suberecta, dense multiflora. Bractee conspicuae, infundibuliformes, patentes. Flores parvi, late cyathiformes. Sepalum dorsale suborbiculari-ovatum, valde concavum. Sepala lateralia paulo longiora et angustiora, libera vel semiconnata, oblongo-ovata, infra concava. Petala elliptico-oblonga vel late oblonga, apice truncato vel late rotundato. Labellum in situ naturali oblongum et tubulari-concavum, expansum trilobatum et rhombico-obovatum, basi cuneatum, apice perlate rotundatum; lobi laterales semiobovati; lobus medius transverse elliptico-oblongus; discus callis duobus brevibus supra et callo semilunari infra ornatus. Columna parva, in pedem latum carnosum producta.

Plant rather stout, epiphytic. Stems approximate, arcuate, about 20 cm. or less long, 1-jointed above the middle, with a close tubular evanescent sheath at the joint. Leaf solitary, ascending, shortly petioled; lamina

oblong-elliptic, rounded at base and apex, up to 12.5 cm. long and 3.8 cm. wide; petiole short, channelled, about 1 cm. or less long. Inflorescence solitary, subequaling or exceeding the leaf, densely many-flowered above, enclosed at base by a conduplicate spathe about 2.4 cm. or less long. Floral bracts conspicuous, spreading, infundibuliform. Flowers reddish yellow, with spreading segments. Sepals minutely cellular-ciliate. Dorsal sepal suborbicular-ovate, deeply concave, rounded to subacute at the apex, 3-nerved, about 7 mm. long and 5 mm. wide when expanded. Lateral sepals semiconnate or free, oblong-ovate, abruptly subacute, slightly oblique, concave below, about 7.8 mm. long and 4.3 mm. or less wide. Petals elliptic-oblong or broadly oblong, truncate to broadly rounded and bluntly subacute at the apex, 3-nerved, about 5 mm. long and 3 mm. wide. Lip oblong and tubular-concave with upcurved sides in natural position, 3-lobed and rhombic-obovate when expanded, cuneate below, 3-nerved, about 4.2–4.5 mm. long and 4 mm. wide when spread out; lateral lobes shallowly semiobovate; mid-lobe transversely elliptic-oblong; disc with a fleshy callus on each side just within the sinus between the lobes and with a lower semicircular callus near the concave base. Column small, somewhat dilated below, about 3.4 mm. high at the back, produced into a stout broad fleshy foot.

This species is allied to *Pleurothallis Vargasii* C. Schweinf., but differs markedly in its more slender stems, narrower leaf, solitary inflorescence, glabrous sepals and the details of the lip.

Cuzco: Prov. of Paucartambo, Pillahuata, at 2800 meters altitude, January 25, 1945, C. Vargas 4957 (TYPE in Herb. Ames No. 63340).

***Pleurothallis frutex* Schltr. var. *robusta* C. Schweinfurth var. nov.**

Herba habitu robustiore, caulibus minus ramosis cum ramis strictis, foliis majoribus, floribus majoribus atque labelli parte anteriore majore a specie differt.

Plant large and stout, up to over 33 cm. high (the longest stem incomplete in our specimen). Stems caespitose, strict, one-branched and often superposed with shorter members above, about 7-jointed or less, entirely concealed by more or less elongate close and imbricating tubular sheaths which are densely pilose when young, about 23 cm. or less long, the branches often very short. Leaves solitary at each terminal joint of the stem or branch, elliptic-lanceolate to narrowly oblong-lanceolate, acuminate with an acute mucronate apex, cuneate at the sessile base, commonly rigidly erect and coriaceous, up to 17.1 cm. long and 2.3 cm. wide, the uppermost leaves (on the branches) much smaller. Inflorescences axillary, glomerate, densely many-flowered. Flowers dark brown, campanulate, with the segments recurved above. Dorsal sepal lanceolate, acuminate with an acute apex, 5-nerved near the base with the lateral nerves branched, about 1.52 cm. long and 4.2 mm. wide. Lateral sepals similar, obliquely lanceolate, connate toward the base, about 1.47 cm. long when expanded and 4.2 mm. wide across the base of the free portion. Petals somewhat longer than the dorsal sepal, from an obliquely ovate-lanceolate base contracted into a narrowly linear cauda which is acute at the tip, 3-nerved, about 1.92 cm. long and 2.9 mm. wide below. Lip much shorter than the other segments, arcuate-recurved below the middle, 5 mm. long in natural position, very shortly clawed, broadly oblong in outline when viewed from above, rounded in front with irregularly dentate-erose margins and an erect-spreading tooth on each side in the middle of the somewhat narrower basal half; disc through the lower part with a pair of erect fleshy recurved keels. Column minute, about 3

mm. high at the back, produced at a right angle into a stout subequally long foot.

The variety differs from the type in being a more robust plant with strict few-branched stems, commonly much larger leaves, differently colored flowers and a lip having a relatively larger anterior portion.

Cuzco: Prov. of Paucartambo, Pillahuata, at 3400 meters altitude, epiphyte in rain-forest, "ceja de montana," December 11, 1942, *C. Vargas 3007* (TYPE in Herb. Ames No. 63338).

***Pleurothallis graciliscapa* C. Schweinfurth sp. nov.**

Herba epiphytica, caespitosa, pro sectione pusilla. Rhizoma repens ut videtur. Caules pergraciles, suberecti vel paulo flexuosi, apice unifoliati. Folium late patens, ovatum vel oblongo-ovatum, basi valde cordatum, saepissime acuminatum. Inflorescentiae abbreviatae, fasciculatae, uniflorae. Flores perparvi, bilabiati. Sepalum dorsale elliptico-ovatum vel oblongo-ovatum, concavum, trinervium. Sepala lateralia in laminam late ovatam profunde concavam connata. Petala linearia, leviter falcato-decurva, margine leviter erosa. Labellum oblongo-ovatum, valde carnosum, apice minute acutum vel apiculatum, basi cordatum, trinervium. Columna abbreviata.

Plant epiphytic, caespitose, up to 15.5 cm. high. Rhizome apparently creeping (only a fragment remains). Roots fibrous, filiform, glabrous. Stems very slender, about 4–13.2 cm. long, erect to irregularly flexuous, furnished at the base with one or two long close, tubular, evanescent sheaths and with a similar longer one below the middle. Leaf solitary, sessile, commonly horizontally spreading, ovate or oblong-ovate, deeply cordate at base (when mature), acute or acuminate with a minutely tri-denticulate apex, 2.8–4 cm. long from the apex to the tip of the basal auricles, 1.1–1.7 cm. wide, chartaceous in the dried specimen. Inflorescences abbreviated, 1-flowered, about five or less. Flowers very small, bilabi-

ate, pale yellow. Sepals ringent, glabrous. Dorsal sepal elliptic-ovate or oblong-ovate, concave, obtuse or subacute, 3-nerved, 4–4.2 mm. long, 2–2.2 mm. wide. Lateral sepals entirely connate into a broadly ovate or round-ovate lamina which is deeply concave, 4-nerved, 3–3.9 mm. long and about 2.3 mm. or less wide when expanded. Petals linear, widespreading, lightly falcate-decurved, obtuse or subacute, 1-nerved, with irregular or minutely erose margins, about 2.6 mm. long and 0.5 mm. wide at the base. Lip oblong-ovate, very fleshy, minutely acute or apiculate, cordate at base, minutely erose, 3-nerved with the termination of the mid-nerve dilated and prominent beneath, about 2.1–2.6 mm. long from a basal auricle to the apex and 1.4–1.6 mm. wide at the base. Column stout, abbreviated, characteristic of the genus.

This little species is allied to *Pleurothallis juninensis* Schltr., but is much smaller throughout and lacks the prominently narrowed sepals of that concept. It suggests *P. magnipetala* C. Schweinf. (see below), but has horizontally spreading leaves and relatively smaller and minutely erose petals.

HUÁNUCO: Tingo María, epiphyte at 670 meters altitude, October 29, 1948, *J. B. Carpenter 103* (TYPE in Herb. Ames No. 65447).

SAN MARTÍN: on cliffs on top of slope east of Tingo María, at 625–1100 meters altitude, October 30, 1949–February 19, 1950, *H. A. Allard 20820*.

***Pleurothallis hirsutissima* C. Schweinfurth sp. nov.**

Herba pusilla, epiphytica, caespitosa. Planta omnino (radicibus exceptis) dense hirsutissima. Caules breves, graciles, apice unifoliati, vaginis paucis tubulatis arctis dense hirsutis omnino vestiti. Folium ellipticum vel elliptico-oblongum, sessile, acutum vel obtusum, omnino dense hirsutum, coriaceum. Inflorescentiae breves, fas-

ciculatae, paucae ut videtur, uniflorae. Ovarium praesertim densissime longe-hirsutum. Flos pro planta magnus. Sepala extus dense hirsuta. Sepalum dorsale triangulari-lanceolatum, in partem superiorem filiformem apice carnosio-clavatam extensum. Sepala lateralia plusminusve connata, utrumque semiellipticum, subacutum. Petala oblique et anguste lanceolata, sepalo dorsali similia. Labellum panduratum, acutum; lobi laterales prope basim late ovato-triangulares, acuti; lobus terminalis late obovatus, acutus, margine lacerato. Columna arcuata, supra dilatata et trilobata.

Plant small, slender, with an abbreviated rhizome. Roots fibrous, glabrous, numerous. Stems caespitose, widely spreading, slender, usually 2-jointed, up to 4.5 cm. long, entirely concealed by two to four close tubular densely hirsute sheaths. Leaf solitary, usually more or less erect, elliptic to elliptic-oblong, sessile, acute or obtuse, densely hirsute on both surfaces, up to 3.9 cm. long and 1.3 cm. wide, finely spotted with purple or brownish beneath. Inflorescences abbreviated, fascicled, one to five, 1-flowered. Mature ovary ellipsoid-cylindric, very densely long-hirsute. "Flower translucent pale green with purple marks and dots." Sepals densely hirsute without. Dorsal sepal triangular-lanceolate, narrowed into a purple filament which is clavate and fleshy-thickened at the apex, 5-nerved, lightly concave, about 10.2 mm. long and 3 mm. wide near the base. Lateral sepals more or less connate, semielliptic and incurved, concave, 5-nerved with an additional short outer nerve, subacute, about 9 mm. long and 3 mm. wide in the middle. Petals obliquely and narrowly lanceolate, acuminate and produced into a purple filament which is fleshy-thickened and clavate at the apex, 3-nerved, about 8.3 mm. long and 2 mm. wide below, with the margins above the basal portion minutely cellular-ciliate. Lip pandurate, about

5 mm. long and 2.6 mm. wide near the base and apex, acute, 3-nerved, with a pair of obliquely ovate-triangular incurved sharply acute lobules near the base; terminal portion broadly obovate with lacerate margins; disc adorned with numerous dense papillae and with a pair of keels extending from the middle of the lateral lobules (where they are broad and flat) to above the middle. Column small, arcuate, dilated above, with an irregularly 3-lobed and dentate apex, about 3.6 mm. high at the back.

This species differs from the Costa Rican *Pleurothallis pilosissima* Schltr. in having shorter broader leaves, narrower lateral sepals and a dissimilar lip.

JUNÍN: Prov. of Tarma, Agua Dulce, at 1800 meters altitude, rare, epiphyte among mosses on a tree in tall forest, March 15, 1948, *F. Woytkowski 35475* (TYPE in Herb. Ames No. 65977; ISOTYPE in Univ. Calif.).

Pleurothallis juninensis* Schltr. var. *angustifolia
C. Schweinfurth var. nov.

Haec planta foliis angustis, oblongis vel linearibus cum basi late cuneata vel rotundata vel subcordata a typo differt.

Plant caespitose. Stems numerous, 4.5–15 cm. high, unifoliate. Leaf erect or horizontally spreading, oblong or lanceolate-oblong to linear, more or less narrowed to a tridenticulate apex, broadly cuneate to rounded or subcordate at the base, 4.3–8.5 cm. long, up to 1.4 cm. wide, more fleshy in consistency than usual in the type. Flowers similar to those of the typical form, but with slightly shorter and broader sepals.

HUÁNUCO: Yanano, at about 1800 meters altitude, epiphyte on mossy tree, May 13–16, 1923, *J. Francis Macbride 3847* (TYPE in Herb. Field Mus. 534910; ISOTYPE in Herb. Ames No. 60946).

JUNÍN: Chanchamayo Valley, at 1200 meters altitude, August 1929, *Carlos Schunke 1123*.

Pleurothallis magnipetala C. Schweinfurth sp.
nov.

Herba parvula, gracilis. Rhizoma probabiliter repens. Caules subapproximati, filiformes, apice unifoliati, vaginis duabus tubulatis arcte obtecti. Folium saepissime abrupte reflexum, anguste ovatum, profunde cordatum, supra angustatum, apice minute tridenticulato. Inflorescentiae axillares, abbreviatae, fasciculatae, uniflorae. Flores perparvi, bilabiati. Sepalum dorsale oblongo-ovatum, subacutum, concavum. Sepala lateralia in laminam late ovatam concavam connata. Petala pro subgenere magna, oblongo-lanceolata vel lineari-elliptica, acuta, sepalis lateralibus subaequilonga. Labellum carnosum, parvum, anguste ovato-triangulare. Columna brevissima, carnosissima.

Plant small, slender, subcaespitose, up to 11.5 cm. high. Roots numerous, fibrous, glabrous, simple, about as thick as the stems. Rhizome abbreviated, creeping. Stems subapproximate, filiform, 1-leaved at the apex, apparently 1-jointed below the middle, shortly decumbent at the base and arcuate at or near the apex, about 11 cm. or less long, with two close tubular sheaths (one at the base and the other longer one below the middle). Leaf narrowly ovate, deeply cordate at base, usually abruptly reflexed or widespreading, gradually narrowed above to an obtuse or subacute minutely tridenticulate tip, 4.3–5.1 cm. long from the apex of the lamina to the tip of a basal auricle, up to 1.8 cm. wide, chartaceous. Inflorescences axillary, abbreviated, consisting of numerous 1-flowered stems. Flowers very small, bilabiate, orange-yellow. Dorsal sepal oblong-ovate, subacute, concave, 3-nerved, about 4.3 mm. long and 2 mm. wide. Lateral sepals connate into a broadly ovate concave lamina which is minutely bidentate at the tip, about 3.5 mm. long and 2.5 mm. wide, prominently 2-nerved. Petals

large for the subgenus, oblong-lanceolate or linear-elliptic, acute, normally 1-nerved, about 3.5 mm. long and 1 mm. or more wide, entire or locally minutely erose. Lip fleshy, narrowly ovate-triangular, shallowly cordate at the base, acute or subacute, 3-nerved, about 2.5 mm. long in greatest length and 1.5 mm. wide at the base. Column very short and stout.

This species, which belongs to a large and perplexing group of *Pleurothallis*, appears to be quite new to Peru. The relatively large petals are distinctive, as well as the generally sharply reflexed leaves.

Cuzco: Prov. of Quispicanchis, Hda. Itío, Marcapata, in stony or rocky open places, at 2000 meters altitude, January 27, 1943, *C. Vargas 3128* (TYPE in Herb. Ames No. 63357).; Prov. of Quispicanchis, Cadena, epiphyte at 1020 meters altitude, July 29-30, 1946, *C. Vargas 6221*.; Prov. of Paucartambo, S. Pedro to S. Isabel, at 1350 meters altitude, on old tree trunks, flowers dull yellow, December 6, 1947, *C. Vargas 6784*.

***Pleurothallis pantasmoides* C. Schweinfurth sp. nov.**

Herba epiphytica, crassa. Caules leviter arcuati, basi teretes, supra sensim dilatati et sursum conspicue bialati, cum centro in folii partem basalem prominenter extenso. Folium rigide erectum, elliptico-oblongum, obtusum, basi cuneatum cum lateribus in caulem decurrentibus. Inflorescentiae axillares, decurvae, perbreves, circa quatuor, pauciflorae. Flores parvi, carnosissimi, extus pubescentes. Sepalum dorsale oblanceolato-oblongum, late obtusum. Sepala lateralia in laminam brevioris suborbicularem connata. Petala minora, lanceolato-rhombica, apice late truncata vel truncato-retusa, supra minute denticulata. Labellum carnosissimum, in situ naturali arcuato-recurvum, ovatum ut videtur, apice late rotundatum. Columna parva, arcuata, supra abrupte alato-dilatata.

Plant stout, epiphytic, up to 34 cm. tall. Rhizome

(only a fragment in our specimen) woody. Roots fibrous, glabrous, elongate, slender, mostly simple. Stems lightly arcuate, 23–25.5 cm. long, 1-jointed near the terete base, 4-angled below, gradually dilated and ancipitous-bialate above, with the middle part extending up about 2 cm. into the lamina of the leaf. Leaf solitary, rigidly erect, elliptic-oblong, obtuse, cuneate below with the sides decurrent on the stem, about 10–10.5 cm. long in the center, 3.1–3.6 cm. wide, coriaceous. Inflorescences rising from the summit of the stem above the base of the leaf, very short, arcuate-recurved, few (about four), densely few-flowered. Floral bracts loosely infundibuliform and spreading, scarious. Flowers small, fleshy, densely fine-pubescent on the ovary and outer surface of the perianth, reddish wine-color. Dorsal sepal oblanceolate-oblong, broadly obtuse, 3-nerved, about 8.7 mm. long, 3–3.2 mm. wide. Lateral sepals connate into a suborbicular lamina which is slightly bidentate at the broadly rounded apex, 6-nerved, more or less ciliolate, about 6 mm. long in the middle and 7.2 mm. wide when expanded. Petals smaller than the sepals, lanceolate-rhombic, broadly truncate or truncate-retuse at the apex, minutely denticulate except below the middle, lightly arcuate, 1-nerved and thickened through the middle, about 4 mm. long and 2.1 mm. wide across the middle. Lip very fleshy and arcuate-recurved in natural position, apparently ovate, the sides of the basal portion being erect with indistinct shallowly rounded lobules, about 3.5 mm. long in natural position, 3-nerved, broadly rounded in front, cuneate at the sessile base; disc with two indistinct fleshy ridges in the middle ones on each side. Column small, arcuate, slender below, with a pair of relatively large semiorbicular, denticulate, porrect auricles above, about 3.5 mm. high at the back.

This species seems to be rather closely allied to two

Central American orchids, *Pleurothallis pantasmii* Reichb.f. and *P. circumplexa* Lindl. In general appearance it more nearly resembles *P. pantasmii*, but differs in having much larger flowers with a pubescent ovary and truncate-tipped petals. It varies from *P. circumplexa* in having leaf-blades that are usually narrower, larger flowers and dissimilar broader petals.

Cuzco: Prov. of Paucartambo, Yanamayo-Tambomayo, at 1800 meters altitude, May 4, 1947, C. Vargas 6499 (TYPE in Herb. Ames No. 65152).

***Pleurothallis retusiloba* C. Schweinfurth sp. nov.**

Herba epiphytica, mediocris. Caules saepissime fasciculati, vaginis tubulatis duabus vel tribus ornati, apice unifoliati. Folium breviter petiolatum; lamina elliptico-oblonga, apice late obtusa et minute bilobulata, basi late cuneata. Inflorescentiae folia plusminusve superantes, dense multiflorae. Flores perparvi, membranacei. Sepala conspicue carinata, acuta. Sepalum dorsale valde concavum, oblongo-ovatum, acutum. Sepala lateralia fere usque ad medium connata, sepalo dorsali similia. Petala circiter duplo breviora, oblongo-cuneata, apice oblique subtruncata vel leviter retusa, trinervia. Labellum minus, trilobatum, cum lobis lateralibus semiobovatis et lobo medio subquadrato et leviter retuso. Columna minuta, in pedem carnosissimum extensa.

Plant epiphytic, medium-sized. Rhizome apparently shortly creeping, woody. Roots fibrous, glabrous, slender, numerous. Stems in fascicles of two or three, enveloped at the base by two or more stout tubular imbricating sheaths, or more rarely solitary and 2-3 cm. distant, straight to lightly flexuous or arcuate, about 9-14 cm. long, provided with two or three remote tubular sheaths of which the upper one equals or surpasses the apex of the stem. Leaf solitary, ascending, short-petioled; lamina elliptic-oblong, lightly retuse-bilobulate at the rounded

apex, broadly cuneate at the base, 6–7.2 cm. long, about 2 cm. wide, coriaceous, with the mid-nerve prominent beneath; petiole short, sulcate, 5–10 mm. long. Inflorescences one or two, more or less surpassing the leaf, densely many-flowered, suberect to arcuate, about 9–14 cm. long, subtended by a conduplicate spathe up to 1.5 cm. long. Floral bracts very small, approximate, infundibuliform, acute. Flowers small, nodding, secund, campanulate, about 5 mm. long, membranaceous, on pedicellate ovaries which barely surpass the bracts. Sepals prominently carinate without, glabrous but with involute ciliolate margins. Dorsal sepal strongly concave, oblong-ovate, acute, 3-nerved, about 4.7 mm. long and 2 mm. wide when expanded. Lateral sepals connate into an ovate-oblong concave lamina which is 6-nerved and divided almost to the middle into a pair of ovate-lanceolate acute lobes, about 4.7 mm. long and 2.5 mm. wide. Petals much smaller than the sepals, oblong-cuneate, obliquely subtruncate to lightly retuse at the apex, 3-nerved, about 2.3 mm. long and 1.2 mm. wide above. Lip very small, tubular-concave in natural position, when expanded rather deeply 3-lobed, five-angled in outline, about 1.5 mm. long and 1.75 mm. wide, cuneate at the base, 3-nerved; lateral lobes semiobovate, spreading; mid-lobe subquadrate in outline, about half as long as wide, shallowly retuse in front; disc with an obscure transverse thickening near the base. Column minute, about half as long as the petals, with a prominent fleshy foot.

This species seems to be allied to *Pleurothallis trilineata* Lindl., but differs in having strongly connate lateral sepals, truncate petals and a retuse mid-lobe of the lip.

Cuzco: Prov. of Paucartambo, Pillahuata, at 3000 meters altitude, epiphyte in rain-forest, December 12, 1942, *C. Vargas 3030* (TYPE in Herb. Ames No. 65174).

Pleurothallis semipellucida *Reichb.f.* var. **grandiflora** *C. Schweinfurth* var. *nov.*

Herba floribus multo majoribus et comparate laxioribus a specie differt.

Plant large, tall, epiphytic. Stem suberect, about 38.3 cm. high. Leaf solitary, widespreading, ovate, apparently acute (imperfect at the apex), broadly rounded or subcordate at the sessile base, about 18.7 cm. long and 8.5 cm. wide. Inflorescences two, nearly twice as long as the leaf, flexuous-suberect, rather loosely many-flowered, clasped at the base by an inconspicuous conduplicate spathe about 3.5 cm. long. Flowers secund, bilabiate, much larger than those of the typical form, yellow, with widely spreading segments. Dorsal sepal elliptic-ovate, acute, 3-nerved, about 1.1 cm. long and 5.8 mm. wide. Lateral sepals entirely connate into a suborbicular-ovate deeply concave acute lamina which is about equally long with the dorsal sepal and about 7.4 mm. wide when expanded. Petals linear, acuminate, very fleshy, lightly incurved, about 9.5 mm. long and 0.9 mm. wide. Lip very small, transverse, abruptly reflexed in the middle, lightly 3-lobed, about 2.5 mm. long and 5 mm. wide; lateral lobes obliquely semiorbicular, convex, spreading; mid-lobe semiorbicular-ovate, abruptly acute or mucronate. Column very short and stout, dilated above and below.

This concept is vegetatively closely similar to typical *Pleurothallis semipellucida*, but differs rather strikingly in having somewhat looser racemes of much larger flowers.

Cuzco: Prov. of Convención, "alturas de Pintobamba," at 2700 meters altitude, March 2-3, 1943, *C. Vargas 3243* (TYPE in Herb. Ames No. 60044).

Pleurothallis tenuifolia *C. Schweinfurth* sp. *nov.*

Herba epiphytica, caespitosa, mediocris. Caules approximati, graciles, unifoliati, vaginis tubulatis arctis

tribus ornati. Folium lineare, apice abrupte obtusum vel rotundatum, basi anguste et indistincte petiolatum. Inflorescentia saepissime unica, laxe multiflora. Flores mediocres, flavi. Sepala similia, intus superne minute pubescentia. Sepalum dorsale lineari-lanceolatum, supra longe angustatum. Sepala lateralia oblique lineari-triangularia vel lineari-lanceolata, longe acuminata, basi mentum conspicuum formantia. Petala multo minora, anguste cuneato-oblonga, leviter obliqua, apice cucullato rotundata. Labellum in positu naturali arcuato-recurvum, expansum anguste obovato-oblongum, prope medium utrinque levissime constrictum (igitur subpanduratum), basi sensim angustatum, apice rotundatum; discus bicarinatus. Columna parva.

Plant epiphytic, caespitose. Rhizome abbreviated. Roots numerous, fibrous, glabrous. Stems approximate, slender, up to 13.5 cm. tall, provided with three close tubular evanescent sheaths of which the two lower are shorter and imbricating and the upper one larger and separate. Leaf solitary, erect or erect-spreading, linear, abruptly obtuse to rounded at the apex with a minute apicule, gradually narrowed below to an indistinct petiole, 7.5–12 cm. long, up to 1 cm. wide, generally with revolute margins (especially in the lower portions) in the dried specimen. Inflorescence commonly solitary (occasionally two rachises are present on one stem), erect to arcuate or flexuous, loosely many-flowered, shorter than or exceeding the subtending leaf, up to about 17 cm. long. Flowers yellow with a white column. Sepals free or connate at the very base, recurved-spreading above, finely pubescent within in the upper part, 3-nerved. Dorsal sepal linear-lanceolate, long-narrowed to an acute or subacuminate tip, concave below, about 1.3 cm. long and 2.6 mm. wide across the concave lower portion. Lateral sepals obliquely linear-triangular or linear-lanceo-

late, long-acuminate, concave below, forming a prominent mentum with the column-foot, about 1.3 cm. long and 2.8 mm. wide near the base. Petals narrowly cuneate-oblong, lightly oblique, rounded at the cucullate apex, 3-nerved with the mid-nerve marked by a conspicuous thickening on the back about 5 mm. long and 1.6 mm. wide near the apex. Lip arcuate-recurved in natural position, when expanded narrowly obovate-oblong in outline, very lightly constricted on each side near the middle and thus subpandurate, gradually narrowed toward the base, broadly rounded at the apex, up to 5.9 mm. long and 2 mm. wide near the apex; disc with two short parallel keels near the middle. Column small, lightly arcuate, concave in front, about 3.9 mm. long at the back, 3-lobed at the apex with the lateral lobes acutely dentiform and the mid-lobe relatively large, retuse and coarsely dentate, produced at the base into a conspicuous upcurved foot.

This species differs from the Bolivian *Pleurothallis amblyopetala* Schltr. in having much longer stems and leaves and ecarinate pubescent sepals. It varies from the Venezuelan *P. meridana* Reichb.f. in the form of the petals and lip.

JUNÍN: Prov. of Tarma, Agua Dulce, at 2000 meters altitude, on a tree in low highland forest, "Stalks slightly purplish. Leaf exceedingly thick and hard. Stem brownish at base," March 8, 1948, *F. Woytkowski 35432* (TYPE in Herb. Univ. Calif.; ISOTYPES in Herb. Ames and in Herb. Mo. Bot. Gard.).

***Liparis laticuneata* C. Schweinfurth sp. nov.**

Herba mediocris, decumbens cum rhizomate longe repenti, foliis raris ornata. Caulis superior foliosus. Folia petiolata; lamina ovata vel lanceolato-ovata, acuta vel acuminata, basi late cuneata vel subcordata; petiolus canaliculatus, basi tubulari caulem amplectenti. Racemus subdense multiflorus. Flores pro genere parvi. Sepala petalaeque reflexa. Sepala similia, oblongo-lanceolata,

lateralia paulo latiora. Petala linearia vel lanceolato-linearia. Labellum flabellato-cuneatum, apice late rotundato leviter retusum et mucronatum, latius quam longius. Columna minuta, crassa.

Plant medium-sized, decumbent with a stout long-creeping rhizome which bears leaves at intervals of 4–7.5 cm. and very scattered simple fibrous roots. Stem gradually continued from the rhizome, erect above, leafy, about 20 cm. long up to the base of the peduncle. Leaves distinctly petioled; lamina ovate or lanceolate-ovate, acute or acuminate, broadly cuneate to subcordate at the base, up to 5.5 cm. long and 3 cm. wide; petioles stout, channelled, with slightly dilated tubular sheathing bases, about 2.5 cm. or less long. Inflorescence erect, about 13 cm. long; peduncle short, naked, about 2.7 cm. or more long; racemes subdensely many-flowered; floral bracts narrowly triangular-lanceolate, acuminate, up to 1.1 cm. long. Flowers small, “pale yellow-greenish.” Sepals and petals reflexed, with revolute margins in natural position. Dorsal sepal lanceolate-oblong, subacute to abruptly obtuse, about 6–6.6 mm. long and 1.8 mm. wide. Lateral sepals similar, oblong-lanceolate, subacute, slightly oblique, about 6–6.6 mm. long and 2.2 mm. wide. Petals linear or lanceolate-linear, abruptly truncate and minutely retuse at the apex, 6.3–6.9 mm. long and 1 mm. wide near the base. Lip flabellate-cuneate, rather abruptly dilated from a very short cuneate base, lightly retuse and bluntly mucronate at the broadly rounded apex, with the anterior margins irregularly crenulate-dentate, about 7–8 mm. long in the middle and 10–13 mm. wide; disc with a central thickened band extending through the middle. Column minute, stout, about 1–1.2 mm. high at the back.

This species apparently lacks any close ally. It is vegetatively similar to *Liparis brachystalix* Reichb.f. and florally very like *L. elegantula* Kränzl.

Cuzco: Prov. of Convención, "alturas de Pintobamba," at 2700 meters altitude, epiphyte or terrestrial in humus in wet forest, March 4, 1943, *C. Vargas 3264* (TYPE in Herb. Ames No. 65057).

***Liparis ramosa* Poepp. & Endl. var. *Rusbyi* (Rolfe) C. Schweinfurth comb. nov.**

Liparis Rusbyi Rolfe in Bull. N.Y. Bot. Gard. 4 (1907) 454.

Subsequent examination of Bolivian and Peruvian specimens referable to *Liparis Rusbyi* has convinced me that it differs from *L. ramosa*, represented by numerous Peruvian collections, by only a few constant characters. While the plant described as *L. Rusbyi* appears to be somewhat larger throughout, the most notable difference is in its larger flowers. The sepals of *L. ramosa* are about 8 mm. or less long, while those of *L. Rusbyi* are 10–11 mm. long. A more fundamental discrepancy, however, lies in the lip. In *L. ramosa* this organ is more or less subquadrate-obovate with a rounded to subcordate lower portion above the acute base and is about 7–9 mm. in length. In *L. Rusbyi* the lip is obovate or oblong-obovate to oblong-oval and is about 11–13.6 mm. long.

It appears, therefore, that it is advisable to recognize the plant with the relatively large flowers that have a lip with a more or less cuneate base (described as *Liparis Rusbyi*) as a well-marked variety of the older *L. ramosa*.

***Hexisea bidentata* Lindley var. *imbricata* (Lindl.) C. Schweinfurth comb. nov.**

Diothonea imbricata Lindley Sert. Orch. (1841) t. 40, fig. 1.

Epidendrum oppositifolium A. Rich. & Gal. in Ann. Sci. Nat. ser. 3, 3 (1845) 21, no. 46.

Diothonaea oppositifolia Reichenbach filius in Linnaea 22 (1849) 842.

Euthonaea imbricata Reichenbach filius in Bot. Zeit. 10 (1852) 772.

Euthonaea oppositifolia Reichenbach filius in Bot. Zeit. 10 (1852) 772.

Hexisea imbricata Reichenbach filius in Walp. Ann. 6 (1862) 470.

Hexisea oppositifolia Reichenbach filius in Walp. Ann. 6 (1862) 470.

A careful examination of *Hexisea bidentata*, supplemented by a drawing of this concept from the Lindley Herbarium, together with numerous collections reasonably referred to this concept, has convinced me that it should be regarded as distinctly separable from the concept described as *Diothonea imbricata* Lindl. and *Epidendrum oppositifolium* A. Rich. & Gal. The point of separation of these closely similar forms lies in the lip. In *Hexisea bidentata* the lip is adorned at the base with a more or less distinct thickening, whereas in *Hexisea imbricata* the lip has a well-marked bicarinate callus at the base. In numerous specimens referred to the latter concept, the lip is prevailingly flat with more or less involute sides, as shown by the drawing of the type of *Diothonea imbricata* (l.c.).

This variety is recorded from Mexico, throughout Central America to Panama and from Colombia and Peru.

***Diothonea exasperata* C. Schweinfurth sp. nov.**

Herba epiphytica, tenuis. Caulis gracilis, laxis, simplex vel paulo ramosus, vaginis tubulatis arctis omnino celatus. Folia disticha, linearia vel lineari-lanceolata, apice abrupte rotundata et apiculata, basi sessilia. Racemus terminalis, pendulus, brevis, subdense multiflorus. Flores minores. Sepala appendicibus conspicuis dorso praedita. Sepalum dorsale elliptico-lanceolatum. Sepala

lateralia majora, oblique ovato-lanceolata. Petala linearia vel lanceolato-linearia, leviter subfalcata. Labellum basi semigloboso-dilatatum et columnae alis valde adnatum; lamina pandurato-subquadrata, apice retusa vel bilobata, basi breviter tricarinata. Columna omnino bialata.

Plant epiphytic, slender, lax. Stem slender, simple or sparingly branched, suberect to arcuate-flexuous, entirely concealed by close tubular leaf-sheaths, about 31 cm. or more long (incomplete in our specimen). Leaves (remaining only on the upper sheaths) distichous, numerous, narrowly linear to lanceolate-linear, abruptly rounded and apiculate at the apex, scarcely narrowed at the sessile semiamplexicaul base, up to 8.5 cm. long and 5 mm. wide, chartaceous. Inflorescence terminal, nodding, short, racemose, with the slender rachis about 2.5 cm. long; raceme rather densely 9-flowered; floral bracts narrowly triangular-lanceolate, about one half as long as the pedicellate ovary. Flowers rather small, pinkish white, with spreading segments. Dorsal sepal elliptic-lanceolate, subacute, 3-nerved, with numerous prominent uncinata appendages on the outer surface, about 9.5 mm. long and 3.5 mm. wide. Lateral sepals ovate-lanceolate, very oblique, acute, semiorbicular-dilated at the base in front, with numerous prominent subconical appendages on the outer surface, about 11 mm. long and 5.4 mm. wide near the base. Petals linear or lanceolate-linear, abruptly acute, lightly subfalcate, 3-nerved, with minutely erose margins, about 10 mm. long and 2.2 mm. wide near the base. Lip slightly exceeding the sepals, strongly adnate to the wings of the column at the complanate-semiglobose base, about 12.8 mm. long in greatest length; lamina pandurate-subquadrata, retuse to bilobed in front, broadly cuneate below, with denticulate-erose margins, about 8.8 mm. wide across the basal portion; disc with a short tricarinate callus at the base, the

central keel being much reduced below. Column short, stout, about 5.8 mm. high at the back, prominently winged throughout with the wing on each side gradually dilated from the apex to the base of the column where it is adnate to the basal sac of the lip.

This species appears to be distinct from all of the other members of its genus by reason of the muricate or subconical appendages on the back of the sepals and by the subquadrate-pandurate lip.

Cuzco: Prov. of Paucartambo, Pillahuata, "epifita, rara; periantio rosa-pálido, blanquecino, transparente, exteriormente 'mamillate,' " January 25, 1945, *C. Vargas 4953* (TYPE in Herb. Ames No. 63135).